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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,754	11/26/2003	Ralph I. Larson	HTI-019BUS	7292

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DALY, CROWLEY, MOFFORD & DURKEE, LLP
SUITE 301A
354A TURNPIKE STREET
CANTON, MA 02021-2714

EXAMINER

MCKINNON, TERRELL L

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/722,754

Applicant(s)

LARSON, RALPH I.

Examiner

Terrell L. Mckinnon

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-35 and 42-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 53 is/are allowed.
- 6) ☒ Claim(s) 28-35, 42-52, 54 and 55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/29/2005.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

Response to Amendment

Receipt is acknowledged of applicant's amendment filed August 28, 2005. Claims 36-41 have been canceled without prejudice. Claims 28-35 and 42-55 are pending and an action on the merits is as follows.

Applicant's arguments with respect to claims 28-35, 42-52, 54 and 55 have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 42-44, 47, 49 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Allison (U.S. 3,187,082).

Allison discloses a heat-dissipating device comprising all of the applicant's claimed and disclosed limitations of the instant invention.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 45 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allison (U.S. 3,187,082) in view of Chu et al. (U.S. 6,548,894).

Allison's invention discloses all of the claimed limitations from above except for a thermally conductive material disposed over an end of at least one of the troughs at the first end of the folded fin member such that the end of the trough is closed; thermal interface material disposed on at least one surface of the slug.

5. However, Chu teaches the use of thermal interface material (22).

Given the teachings of Chu, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the heat dissipating device of Allison with a thermally conductive material disposed over an end of at least one of the troughs at the first end of the folded fin member such that the end of the trough is closed; thermal interface material disposed on at least one surface of the slug.

Doing so would provide a means of thermally enhancing the connection between the two objects.

6. Claims 46 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allison (U.S. 3,187,082) in view of Chu et al. (U.S. 6,548,894) as applied to claims above, and further in view of Plegat (U.S. 3,422,777).

Allison's invention, as modified by Chu, discloses all of the claimed limitations from above except for a gas supply source disposed proximate a second end of said folded fin member; and wherein material which was where the aperture is provided extends from said sidewall.

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7. However, Plegat teaches a corrugated fin wherein material, which was where the aperture is provided, extends from the sidewall.

Given the teachings of Plegat, it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the heat dissipating device of Allison with a gas supply source disposed proximate a second end of said folded fin member; and wherein material which was where the aperture is provided extends from said sidewall.

Doing so would provide an alternate arrangement for dissipating heat and cooling the heat-generating device.

8. Claims 54 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allison (U.S. 3,187,082) in view of Chu et al. (U.S. 6,548,894) as applied to claims above, and further in view of McCullough (U.S. 6,367,541).

Allison's invention, as modified by Chu, discloses all of the claimed limitations from above except for a the folded fin member includes a portion disposed in a generally non-vertical position; and the folded fin member includes at least one section disposed at a different height than another section.

9. However, McCullough teaches the folded fin member includes a portion disposed in a generally non-vertical position; and the folded fin member includes at least one section disposed at a different height than another section.

Given the teachings of McCullough, it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the heat dissipating device of Allison with the folded fin member includes a portion disposed in a generally

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non-vertical position; and the folded fin member includes at least one section disposed at a different height than another section.

Doing so would provide an alternate arrangement for dissipating heat and cooling the heat generating device based on a given electronic design requirement.

10. Claims 28-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima et al. (U.S. 5,625,229) in view of Grandmont et al. (U.S. 2,413,179).

Kojima invention discloses a heat sink comprising:

- providing a plurality of holes in a piece of material, prior to bending the material aligning the piece of material;
- punching a fold into the piece of material to form a fin having a side edge and a pair of side walls with at least one of the plurality of holes being provided in one of the pair of side walls of the fin;
- retracting the fin; and separating the fin from the remaining material;
- aligning comprises locating an index hole in the material and using the index hole as a reference point such that when the fin is formed in the material, the fin is provided having an aperture in a sidewall thereof.

Kojima fails to disclose the aligning further comprises aligning the material between a stripper plate and an upper die; punching includes lowering an upper die to be adjacent the material; punching includes raising a die block and fin forming punch; punching further comprises punching the fold into a cavity of the upper die; punching

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further comprises lowering said die block and fin forming punch; and punching further comprises raising the upper die.

11. However, Grandmont teaches the use of fin forming apparatus comprising aligning the material between a stripper plate and an upper die; punching includes lowering an upper die to be adjacent the material; punching includes raising a die block and fin forming punch; punching further comprises punching the fold into a cavity of the upper die; punching further comprises lowering said die block and fin forming punch; and punching further comprises raising the upper die.

Given the teachings of Grandmont, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the heat dissipating device of Kojima with a aligning the material between a stripper plate and an upper die; punching includes lowering an upper die to be adjacent the material; punching includes raising a die block and fin forming punch; punching further comprises punching the fold into a cavity of the upper die; punching further comprises lowering said die block and fin forming punch; and punching further comprises raising the upper die.

Doing so would provide a means of forming a thermal heat-dissipating fin for heat sinks.

Allowable Subject Matter

12. Claim 53 is allowed.

Response to Arguments

Applicant's arguments filed August 28, 2005 have been fully considered but they are not persuasive.

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Applicant's states, "claim 28 is patentably distinct over the cited reference since the reference neither describes nor suggests providing a plurality of holes in a piece of material, prior to bending the material. . .and punching a fold into said piece of material to form a fin having a side edge and a pair of side walls as called for in claim 28."

Kojima et al. in view of Grandmont et al. discloses the obvious combination with reference to Claim 28.

Applicant's arguments with respect to Grandmont, are moot in view to the newly found reference to Kojima.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references cited on the USPTO 892 discloses related limitations of the applicant's claimed and disclosed invention.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrell L. Mckinnon whose telephone number is 571-272-4797. The examiner can normally be reached on Monday -Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Blau can be reached on 571-272-4406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Terrell L Mckinnon
Primary Examiner
Art Unit 3753
November 28, 2005